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SURGICAL DISEASES AND HIV STATUS IN PATIENTS AT CENTRAL HOSPITAL OF BEIRA, MOZAMBIQUE.

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ABSTRACT

HIV-positive patients with surgical diseases are at a higher risk than HIV-negative patients of developing post-surgery complications. The goal of this study was to evaluate the main surgical diseases among HIV positive and HIV negative patients hospitalized in the surgical ward of the Hospital Central da Beira (HCB) in Mozambique.

Were collected data before and after surgical procedures in all consecutive adult patients (> 18 years old) admitted and hospitalized at the Surgical Ward of the HCB from January to December 2017.

Overall, a total of 237 adult patients were admitted to the surgical ward of Hospital Central of Beira, Mozambique. We reported all surgical information collected from patients. The most frequent surgical site for the operation was the abdomen (n.174; 73.4%), followed by perineum (n.42; 17.7%) and thorax (n.21; 8.8%). For health professionals working in surgery wards, data on the most frequent postoperative complications in HIV-positive patients will offer useful tools for the follow-up of those patients.

1. Introduction

Human immunodeficiency virus (HIV) has a significant impact o**n** surgery, especially in Africa (1).

In fact, surgical interventions are a common component in the management of patients with HIV or suffering from the clinical consequences of acquired immunodeficiency syndrome (AIDS) (2).

Effective antiretroviral therapy (ART) has significantly increased longevity among HIV-infected patients and the resulting increase of life expectancy has allowed more HIV-positive patients to undergo surgery (2).

For these reasons there is a need for health workers to focus on surgical diseases in HIV patients in terms of feasibility and outcomes (3).

According to WHO, in 2015 about 35.3 million people were living with HIV worldwide and many of these people had already developed AIDS(4). Mozambique has the 8th highest prevalence of HIV in the world, with a 11.5% prevalence of HIV infection in adults between the ages of 15 and 49 (5).

It is observed that with the increase of HIV prevalence, the prevalence of diseases that to date were considered rare increases as well.

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In addition, the clinical presentation of the diseases in HIV patients has been shown to be different from the clinical presentations of the same diseases in HIV-free patients (6,7). HIV-infected patients do not show signs and symptoms that are useful for the preoperative diagnosis of HIV-related surgical diseases (7). These findings show that there is a need to diagnose surgical diseases in patients with HIV and their immediate treatment to improve their prognosis (8)

Moreover, HIV-positive patients with surgical diseases are at a higher risk of developing post-surgery complications than HIV-negative patients, such as sepsis and surgical site infection. (9).

The majority and quality of the data regarding HIV and surgery come from high income countries. There is no data in Mozambique on the main surgical diseases in patients with HIV and on their main postoperative complications. Beira is the capital of the Sofala province, one of the 5 Mozambican provinces in the country with the highest HIV prevalence (15.5%) (5).

Knowing the main surgical diseases and the different clinical manifestations that affect patients with HIV, will allow to pay more attention in the follow-up visits of the patients and to administer the proper attention in advance, thus improving the prognosis of these patients.

The goal of this study was to evaluate the main surgical diseases among HIV positive and HIV negative patients hospitalized in the surgical ward of the Hospital Central da Beira (HCB) in Mozambique.

2. Methods

This is an observational, prospective study conducted at the Surgical Department of Hospital Centrale da Beira, to analyze the prevalence of main surgical diseases.

To this purpose, a trained nurse collected the data before and after the surgical procedures in all consecutive adult patients (> 18 years old) admitted and hospitalized at the Surgical Ward of the HCB from January to December 2017.

In particular, the data collected before surgery included the demographic profile, HIV status, comorbidities, surgery indication, clinical presentation and clinical examination; while patient outcomes, surgical complications and hospital-stay lengths were registered at discharge. Moreover, on the day of discharge patients were also instructed by the study team to return after 7 days for the follow-up visit.

Mean with standard deviations and median with ranges for the continuous variables and proportion and frequencies for the categorical variables were calculated as descriptive statistics. The study sample was stratified by HIV status in two groups, and the comparison between them was analyzed using the X-square and t student when appropriate. IBM SPSS version 21 was used for the statistical analyses.

Ethical approval

The study was approved by the Comité Nacional de Bioetica para a Saúde/ National Bioethics Committee for Health by the protocol Ref: 55/CNBS/16.

Written informed consent was obtained from each patient enrolled.

3. Results

Overall, a total of 237 adult patients (n.141, 59.5% male, n.107, 45.1% under 40) were admitted to the surgical ward of Hospital Central of Beira, Mozambique.

The prevalence of HIV patients in the whole sample was of 46% (n.109).

Table 1 lists demographic and clinical characteristics of all patients, stratified by HIV positivity.

Almost half of all patients (n. 134, 56.5%) were referred to the surgical ward from other hospitals, while the remaining were transferred from other wards. BMI was low (<18) in 28.2% (n.67) of patients, while normal (18 - 25) in 66.2% (n.157) and high (>25) 5.5% (n.13) patients.

The following comorbidities were reported among the patients: gastro-enteric diseases (n.31; 13%), hypertension (n.21, 8.9%), hepatitis (n.20; 8.4%), psychiatric diseases (n.11; 4.6%), diabetes (n.9; 3.8%), TB (n.6; 2.5%) and dermatologic disease (n.3; 1.3%).

Forty-six per cent (n.109) of patients reported symptoms, with an average of 5.2 (1-10) days and a pain scale median value of 7.8.

Differences between the HIV positive and HIV negative patients were observed for distribution of age classes, the under 40-year-old patients were more frequent in the HIV + group (n.65, 60.7%; p-value: 0.00), and of comorbidities with hepatitis and psychiatric disease. In fact, hepatitis prevalence was more frequent in the HIV positive patients (n.16, 80.0%; p-value: 0.01), and the same was for psychiatric diseases (n.8, 72.7%; p-value: 0.07). Moreover, symptoms were reported more frequently in the HIV group (n.71, 65.1%; p-value: 0.00).

		Tot n.237 (100.0%)	HIV + n. 109 (46%)	HIV – n. 128 (54%)	p - value
Demographic characteristics					
Sex	Male	141 (59.5)	67 (47.5)	74 (52.5)	0.5
	Female	96 (40.5)	42 (43.75)	54 (56.25)	
Age	18 – 40	107 (45.1)	65 (60.7)	42 (39.3)	**<0.001**
	Over 40	120 (54.9)	44 (36.6)	86 (63.3)	
Setting	Referred by other Hospital	134 (56.5)	65 (48.5)	69 (51.5)	0.4
	Referred by other ward	103 (43.5)	44 (42.7)	59 (57.3)	
Clinical characteristics					
BMI	Low < 18	67 (28.2)	39 (58.2)	28 (41.8)	-
	Normal 18-25	157 (66.2)	68 (43.3)	89 (56.7)	
	High >25	13 (5.5)	2 (15.3)	11 (84.7)	
Comorbidities	Hypertension	21 (8.9)	12 (57.1)	9 (42.9)	0.28
	Diabetes	9 (3.8)	2 (22.2)	7 (77.8)	0.14
	TB	6 (2.5)	4 (66.6)	2 (33.4)	0.3
	Hepatites	20 (8.4)	16 (80)	4 (20)	**0.01**
	Gastro-enteric diseases	31 (13)	13 (42)	18 (58)	0.62
	Psychiatric disease	11 (4.6)	8 (72.7)	3 (27.3)	**0.07**
	Dermatologic diseases	3 (1.3)	2 (66.6)	1 (33.4)	0.47
Symptoms		109 (46)	71 (65.1)	38 (34.9)	**<0.001**
Days with symptoms (mean; range)		5.2 (1-10)	7.2 (1-12)	3.8 (1-9)	-

Table 1. Demographic and clinical information of patient enrolled at surgical ward of Beira Hospital stratified by HIV positivity.

Table 2 reports all surgical information collected in patients, also stratified by HIV status. The most frequent surgical site for the operation was the abdomen (n.174; 73.4%), followed by perineum (n.42; 17.7%) and thorax (n.21; 8.8%).

The prevalence of surgical diagnosis in our sample was: 21.5% inguinal hernia (n.51), 19.4% peritonitis (n.46), 8.8% perianal fistula (n.21), 8.8% hemorrhoids (n.21), 8.0% hydrocele (n.19), 6.3% epigastric hernia (n.15), 5.5% appendicitis (n.13), 5.5% vaginal-bladder fistula (n. 13), 3.8% bilateral gynecomastia (n.9), 3.4% thyroid goiter (n.8), 2.9% colon carcinoma (n.7), 2.9% breast carcinoma (n.7), 1.7% esophagus (n.4), 1.2% pancreas carcinoma (n.3).

Comparing the distribution of the above mentioned surgical diagnoses in the two groups of patients, HIV patients presented 41.2% (n.21) of inguinal hernia cases, 45.6% (n.21) of peritonitis, 66.7% (n.14) of perianal fistula, 47.6% (n.10) of hemorrhoids, 36.8% (n.7) for hydrocele, 40.0% (n.6) of epigastric hernia, 53.8% (n.7) of appendicitis, 69.2% (n. 9) of vaginal-bladder fistula, 77.7% (n.7) of bilateral gynecomastia, 62.5% (n.5) of thyroid goiter, 42.8% (n.3) of colon carcinoma (n.3), 57.1% (n.4) of breast carcinoma, 25.0% (n.1) of esophagus, 66.6% (n.2) of pancreas carcinoma (table 2).

Emergency intervention was performed in 37.5% (n.89) of the cases with a median length of hospitalization of 9 (range: 5 - 24) days.

HIV patients more often underwent emergency surgery (n.60, 67.4%, p-value: 0.00) than the HIV negative patients, and their hospitalization was also longer (11 days, range 7-24 versus 8 days, range 5 – 19).

		Tot n.237 (100.0%)	HIV + n. 109 (46.0%)	HIV – n. 128 (54.0%)
Surgical site	Thorax	21 (8.8)	14 (66.6)	7 (33.4)
	Abdomen	174 (73.4)	79 (45.4)	95 (54.6)
	Perineum	42 (17.7)	16 (38.0)	26 (62.0)
Diagnosis	Peritonitis	46 (19.4)	21 (45.6)	25 (54.4)
	Inguinalhernia	51 (21.5)	21 (41.2)	30 (58.8)
	Ginecomastia bilateral	9 (3.8)	7 (77.7)	2 (22.3)
	Vaginalbladder fistula	13 (5.5)	9 (69.2)	4 (30.8)
	Esophagus carcinoma	4 (1.7)	1 (25.0)	3 (75.0)
	Colon carcinoma	7 (2.9)	3 (42.8)	4 (57.2)
	Breast carcinoma	7 (2.9)	4 (57.1)	3 (42.9)
	Pancreas carcinoma	3 (1.2)	2 (66.6)	1 (33.4)
	Hemorrhoids	21 (8.8)	10 (47.6)	11 (52.4)
	Hydrocele	19 (8.0)	7 (36.8)	12 (63.2)
	Epigastrichernia	15 (6.3)	6 (40.0)	9 (60.0)
	Perianal fistula	21 (8.8)	14 (66.7)	7 (33.3)
	Thyroidgoiter	8 (3.4)	5 (62.5)	3 (37.5)
	Appendicitis	13 (5.5)	7 (53.8)	6 (46.2)
Days of hospitalization (median - range)		9 (5- 24)	11 (7-24)	8 (5 - 18)
Emergency surgery		89 (37.5)	60 (67.4)	29 (32.6)
Good clinical conditionatdischarge		237 (100.0)	109 (46.0)	12 (54.0)

Table 2. Surgical information and diagnosis' prevalence of patient enrolled at Surgical Ward of Beira Hospital stratified by HIV positivity.

HIV information of HIV positive patients is listed in Table 3.

The median of years from HIV diagnosis was 2.9 (1-5), and 71.5% (n.78) of patients received a regular HIV follow up. All 109 (100%) HIV patients were under ARV therapy; the therapeutic scheme was tenofovir/lamivudine/efavirenz (TDF/3TC/EFV) for 80.7% (n.88) of patients, and zidovudine/lamivudine/nevirapine (AZT/3TC/NVP) for the remaining 19.3% (n.21). The median of years from ARV initiation was 2.6 (1-4).

HIV information		
Years from HIV diagnosis (median, range)		2.9 (1-5)
HIV follow up (n, %)		78 (71.5)
Patients under TARV (n, %)		109 (100)
Years form TARV initiation (median, range)		2.6 (1-4)
Type of ARV	TDF+3TC+EFV (n, %)	88 (80.7)
	AZT +3TC +NVP (n, %)	21 (19.3)

Table 3. HIV information of the 109 HIV positive patients enrolled at surgical ward of Beira Hospital, Mozambique.

All patients, regardless their HIV status, were alive and with good clinical conditions when they were discharged.

4. Discussion

Our study had the goal of reporting the main surgical diseases in patients hospitalized at the Central Hospital of Beira with a particular focus on HIV positive patients.

Favorable surgical outcomes have been reported among HIV-infected patients undergoing surgical procedures. The most frequent surgical diseases seen in HIV patients were inguinal hernia, gynecomastia probably as a collateral effect of ART, vaginal bladder and perianal fistula, thyroid goiter and appendicitis. The data on cancer is interesting, with pancreas and breast carcinoma as the most prevalent types of tumors. HIV patients underwent emergency surgery more often than the HIV negative patients, and also their hospitalization was longer, probably due to the higher severity of diseases and the longer time needed to recover from the surgery (10,11).

For health professionals working in surgery wards, data on the most frequent postoperative complications in HIV-positive patients will offer useful tools for the follow-up of those patients. In our study we were not able to complete a follow up at 30 days but no deaths were recorded in both groups during the hospital stay, which could be a attributed to good surgery results (12,13).

Surgical interventions, particularly in low-income countries, are effective also from an economic point of view for their ability to prevent long-term disabilities. However, this consideration must be contextualized in a setting with high HIV incidence, where many patients still await ART and without a cost-effective method for staging HIV subjects (12,13).

Limited data is available on surgery performed on HIV positive patients in developing countries, especially in Eastern Africa.(14,15,16)

In particular, in Mozambique, a scarce resource setting, with high incidence of HIV and TB, there is limited data available about surgery and outcome of these patients (17,18).

Several studies conducted in hospitals to assess the impact of HIV on surgical diseases have revealed that HIV infection does not affect the healing time of a surgical wound (19). The immunological status of patients with HIV has been reported as one of the main contributing factors for patients' poor prognosis (10,20). Unfortunately we didn't have CD4 count of our HIV patients. Furthermore, our HIV patients were all on ART and they probably had hidden complications.

This study presented some limitations: difficulty in understanding the signs and symptoms for cultural reasons, even if the data collection form was designed to overcome this problem and the role of local nurses minimized the risk of underreporting. In addition, it was impossible to collect data on the control visit recommended at 7th day after discharge, since a high number of patients wasn't present for follow up, so we could not report this result. To better understand our report it should be considered that all admitted patients were under ART, who may present hidden clinical differences between HIV patients and non-HIV patients, and that the CD4 number or percentage was not considered to further describe this patients from a clinical point of view. More studies on surgery in low-income countries, especially in Mozambique, are need to better understand the different surgical diseases of HIV patients, treatment and outcome; also data on pediatric surgery in HIV-infected children, considering that the managment of ART is more challanging in this group of patients (21-22-23), could be of great interest.

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